Remarks

As an initial matter, please note that the amendments herein are made versus the specification and claims as amended during PCT. The PCT-amended specification and claims were supplied to the Office when entering the national phase, and were noted in the file as having been supplied.

Specification Amendments

A substitute specification and abstract is attached hereto, in both marked-up and clean versions. The substitute specification and abstract address the objections contained in the Office Action, and serve to clarify the original specification and abstract without adding any new matter. Details follow:

- The specification has been re-organized into the preferred format, using the appropriate section headings.

- The typographical error has been corrected, so that the phrase "angels of reflection" now reads "angles of reflection".

- The sentence "The plate is divided into zones and every second of them is connected to the supply voltage, whereas the remaining ones are grounded" has been amended to read "The plate is divided into zones and every other one of them is connected to the supply voltage, whereas the remaining ones are grounded". The following clarifying sentence has also been added after the above sentence: "In other words, the zones alternate between a zone that is connected to the supply voltage, then a zone that is grounded, then a zone that is connected to the supply voltage, then a zone that is grounded, and so on" has also been added. These changes serve to clarify the meaning of the phrase "every second of them" in the original specification.

- The term "earthed" has been changed to "grounded", as suggested in the Office Action.

- The term "viz." has been replaced with "namely", which is equivalent. Please note that "viz." is an abbreviation for videlicet or videre licet, which is Latin for "it is permitted to see". The term "namely" is a more common equivalent for "viz."

- Regarding the term "self-assembling", Applicant submits that this term is commonly used and readily understood term in the art of the invention. It refers to something that assembles itself, such as a machine or microstructure. Indeed, the term "self-assembling" is only used in the specification to discuss two related publications that use this term in their titles.

- Regarding the term "exciting signals", Applicant submits that this term is also a commonly used and readily understood term in the art. It refers to a signal that "excites" or activates its target, causing the target to take some action. For example, in the invention a programmable integrated circuit sends a signal to an electroplastic actuator, exciting it and causing it to change the reciprocal position of the casing walls of one of the solid elements that make up the invention. For support, Applicant has attached several excerpts from a Google search for "exciting signals". Applicant has also attached the front pages of two granted U.S. patents which discuss "exciting signals" in their abstracts. There are many such U.S. patents.

- Without adding any new matter, Applicant has amended the specification in numerous places in order to clarify language that was poorly translated into English, that was inexact or verbose, or that contained grammatical or idiomatic errors.

Claim Amendments

The two independent claims in the application, claim 1 and claim 7, have been restructured into a format with a preamble, transitional phrase, and claim body.

In addition, claim 1 has been amended to recite "single solid elements" or "single solid element" consistently throughout the claim, so that it is clear that this is the same limitation. Please note that the plural version of the phrase is used where a plurality of single solid elements is recited, and the singular version of the phrase is used when referring to *each* single solid element in the plurality.

Moreover, claim 7 has been amended to clarify what is meant by "successive running number", and clarify what the relationship is between a particular single solid element and its associated running number. The specification has also been amended to clarify the language used to explain the successive running number feature, without adding any new matter.

Regarding the transmitting of information from an active single solid element to an inactive single solid element, after the inactive single solid element connects to the active single solid element (see Office Action, p. 6, 2nd para.), the information transmittal defined in the claim does not concern the inactive single solid element transmitting information about itself. As defined in the claim and discussed in the specification, the information that is transmitted concerns the desired object which is being constructed (also referred to as the "virtual object" or "virtual structure"), and the successive running number that the system has assigned to the inactive single solid element that has just been connected. For example, an inactive single solid element might be the one hundredth single solid element successively connected up to that point in a structure which will eventually contain six hundred single elements connected together – and thus the successive running number of that particular single solid element is 100. In this way, an

inactive single solid element, once connected, becomes part of the growing conglomeration of single solid elements and can pass on the information about the virtual object and successive running number to the next-connected inactive single solid element if necessary.

Further, claims 1-7 have been amended in various other ways, to make them consistent with typical U.S. claiming practice, establish and maintain proper antecedent bases, and correct grammatical and idiomatic errors.

Finally, new claims 8-10 have been added.

Enablement Exhibit

Accompanying this amendment, Applicant has also provided an exhibit showing the manner in which the invention is used for various commercial applications. These include toys, artificial limbs, and other various designs, as well as chemical bond models for the pharmaceutical and chemical industries.

Applicant Interview Summary

Pursuant to MPEP § 2281, Applicant notes that the Interview Summary dated 02/27/2009 states that the rejections cited in the Office Action for the pre-PCT-amended specification and claims also apply to the post-PCT-amended specification and claims that are currently pending in the application. This is generally true for the specification, and partly true for the claims. Specifically, there are several objected-to phrases that are not present in PCT-amended claim 1:

- "a single element of the system have magnetic polarization depending on the programmed position of the single element"

- "at the same time, in the active state of a single element, the walls of the casing of a single element of the system have different magnetic polarization"
- "whereas in the inactive state of a single element, the walls of the casing of single element of the system have identical magnetic polarization"
- "the casing of a given single element"
- "sets of co-ordinates of the walls of the casing of a given element of the system are assigned to the running numbers of single elements of the system"
- "the set of those data"

Accordingly, these objected-to phrases are not addressed in this amendment.

In addition, there are a few objected-to phrases which are not present in PCT-amended claim 1, but which *are present* in PCT-amended claim 7:

- "information about a virtual object (10) and information on the successive running number (13) in the real structure (9) of the inactive single element of the system being connected is transmitted from an active single element of the system to the memory of the integrated circuit (1) of the inactive single element of the system"
- "successive running number in the real structure of the inactive single element"

These phrases are addressed in this amendment – but with respect to PCT-amended claim 7, not claim 1.

Respectfully,

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13 March 2009

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John A. Galbreath, Reg. #46,718

The Smithsonian/NASA Astrophysics Data System

Exciting signal generator for SSTs

Zemánek, Ivan
Journal of Magnetism and Magnetic Materials, Volume 254, p. 73-75.

The exactly defined magnetic flux waveform (usually sinusoidal one) is the important magnetization condition for the single sheet tester (SST) measurements. The sinusoidal magnetic flux waveform is kept by the DSP controlled exciting signal generator that generates magnetizing voltage with the arbitrary waveform and given frequency. The digital signal processor (DSP) and robust software give possibility for the efficient and adaptive signal processing taking into account strong non-linearity of measured materials, feedback loop stability and required real-time control.

DOI: 10.1016/S0304-8853(02)00758-8

(WO/2000/008633) EXCITING SIGNAL GENERATOR, VOICE CODER, AND VOICE DECODER

Latest bibliographic data on file with the International Bureau

Pub. No.: WO/2000/008633 **International Application No.:** PCT/JP1999/004137
Publication Date: 17.02.2000 **International Filing Date:** 02.08.1999

IPC: ***G10L 19/00*** (2006.01), ***G10L 19/04*** (2006.01), ***G10L 19/08*** (2006.01), ***H04B 14/04*** (2006.01), *H03M 7/30* (2006.01)

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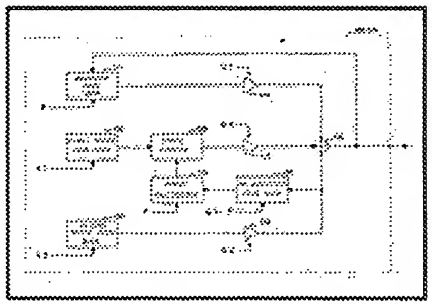
Priority Data: 10/223392 06.08.1998 JP

Title: EXCITING SIGNAL GENERATOR, VOICE CODER, AND VOICE DECODER

Abstract: An MA adaptive code vector is generated by using a finite number of noise code vectors used in the past, an adaptive code book gain, and a pitch period, and the amount of phase shift is calculated from the MA adaptive code vector, thereby shifting the phase of the noise code vector by the calculated amount of phase shift.



Designated States:	AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW. African Regional Intellectual Property Org. (ARIPO) (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW) Eurasian Patent Organization (EAPO) (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM) European Patent Office (EPO) (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE) African Intellectual Property Organization (OAPI) (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
Publication Language:	Japanese (JA)
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Signal modeling of electromagnetic flowmeter under sine wave excitation using two-stage fitting method

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Abstract

The current signal models of electromagnetic flowmeter under sinusoidal excitation cannot describe quantitatively the relationship among the sensor output, flow rate and exciting signal. A two-stage fitting method is proposed to build up the accurate signal model based on experimental data. The first step of the method is to approximate the relationship between the sensor output and the flow rate, and the second one is to fit the relationship between the model coefficients and the frequency or amplitude of exciting current. This method can determine the terms and coefficients of signal model, and reflect the effects of transformer and eddy current.

Keywords: Electromagnetic flowmeter; Signal model; Fitting method; Experiment

Article Outline

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Sensors and Actuators A: Physical
Volume 136, Issue 1, 1 May 2007, Pages 137-143
25th Anniversary of Sensors and Actuators A: Physical

US Patent 6972700 - Resolver/digital converter and control apparatus using the same

US Patent Issued on December 6, 2005

Estimated Patent Expiration Date: **January 27, 2025**Estimated Expiration Date is calculated based on simple USPTO term provisions. It does not account for terminal disclaimers, term adjustments, failure to pay maintenance fees, or other factors which might affect the term of a patent.

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Application

No. 11043639 filed on 01/27/2005

US Classes:

341/116, Analog resolver or synchro signal to digital signal341/155, Analog to digital conversion341/112, Synchro or resolver signal318/661, Resolver systems318/563, With protective or reliability increasing features (e.g., "fail-safe" systems)702/189, Measured signal processing318/652, With particular position measuring instruments340/870.31Inductive transmitter

Field of Search

Abstract Claims Description Full Text

Abstract

This resolver/digital converter has a resolver, a resolver/digital converting portion and an exciting signal generator. The exciting signal generated from the exciting signal generator is supplied to the resolver, and the resolver signals produced from the resolver are supplied to the resolver/digital converter. This resolver/digital converter further has a conversion trigger generator that generates a conversion trigger signal on the basis of the exciting signal generated from the exciting signal generator, an A/D converter that converts the resolver signals produced from the resolver to digital values in response to the conversion trigger signal generated from the conversion trigger generator, and computing means that detects the failure status on the basis of the digital values produced from the A/D

341/116, Analog resolver or synchro signal to digital signal341/112, Synchro or resolver signal341/155, Analog to digital conversion318/661, Resolver systems318/563, With protective or reliability increasing features (e.g., "fail-safe" systems)318/565, Monitoring systems318/605Synchro or resolver (e.g., transmitter simulators)

Examiners

Primary: Mai, Lam T.

Attorney, Agent or Firm

- Crowell & Moring LLP

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Inventor: Kushihara

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International Classes

H03M001/00
G05B001/06

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Comments

No comments for this page

US007006938B2

(12) **United States Patent**
Laraia et al.

(10) **Patent No.: US 7,006,938 B2**
(45) **Date of Patent: Feb. 28, 2006**

(54) **REACTIVE SENSOR MODULES USING PADE' APPROXIMANT BASED COMPENSATION AND PROVIDING MODULE-SOURCED EXCITATION**

(75) Inventors: **Jose Marcos Laraia**, Pocatello, ID (US); **Masahisa Niwa**, Osaka (JP); **Robert P. Moehrke**, Chubbuck, ID (US); **Jose G. Taveira**, Pocatello, ID (US)

(73) Assignees: **AMI Semiconductor, Inc.**, Pocatello, ID (US); **Matsushita Electric Works, Ltd.**, Kadoma (JP)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 37 days.

(21) Appl. No.: **10/870,314**

(22) Filed: **Jun. 16, 2004**

(65) **Prior Publication Data**

US 2005/0283330 A1 Dec. 22, 2005

(51) **Int. Cl.**

G01C 19/00	(2006.01)
G01C 25/00	(2006.01)
G01D 18/00	(2006.01)
G01F 25/00	(2006.01)
G06F 19/00	(2006.01)

(52) **U.S. Cl.** **702/104**; 73/1.88

(58) **Field of Classification Search** ..... None
See application file for complete search history.

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* cited by examiner

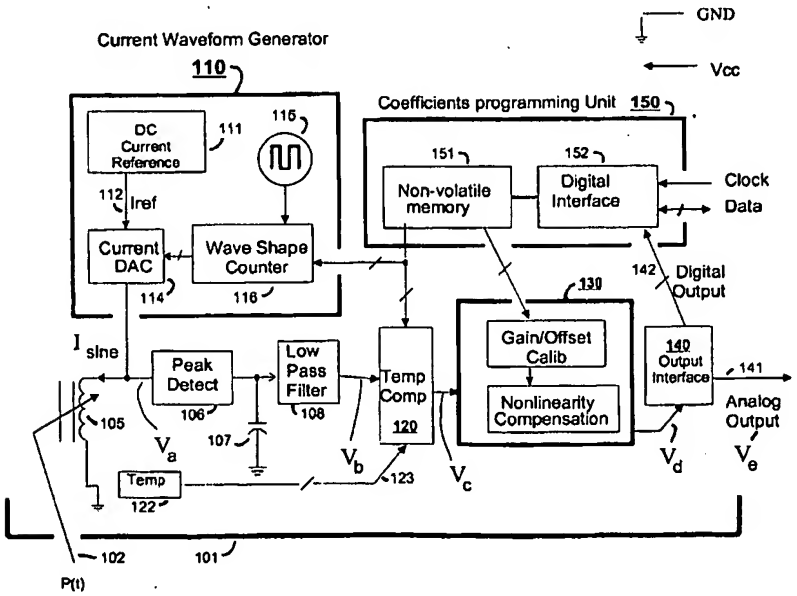
Primary Examiner—John Barlow
Assistant Examiner—Sujoy Kundu
(74) *Attorney, Agent, or Firm*—MacPherson Kwok Chen & Heid LLP; Gideon Gimlan

(57) **ABSTRACT**

Reactive sensors typically exhibit nonlinear response to temperature variation. Systems and methods are disclosed for compensating for the nonlinear and/or temperature dependent behavior of reactive sensors and for calibrating the post-compensation output signals relative to known samples of the physical parameter under measure. One call of embodiments includes a housing containing at least part of a reactive sensor, a monolithic integrated circuit and a timing reference. The integrated circuit includes a waveform generator for generating a sensor exciting signal, a detector for detecting the response of the sensor to the combination of the exciting signal and the under-measure physical parameter, a temperature compensating unit and the Pade Approximant nonlinearity compensating unit are tuned by use of digitally programmed coefficients. The coefficients calibrate the final output as well as compensating for non-linearity and temperature sensitivity.

35 Claims, 11 Drawing Sheets

100



US006093883A

United States Patent [19]

Sanghvi et al.

[11] Patent Number: 6,093,883

[45] Date of Patent: Jul. 25, 2000

[54] **ULTRASOUND INTENSITY DETERMINING METHOD AND APPARATUS**

[75] Inventors: **Narendra T. Sanghvi**, Indianapolis, Ind.; **Francis J. Fry**, Port Charlotte, Fla.; **Carl W. Hennige**, San Jose; **Claudio I. Zanelli**, Sunnyvale, both of Calif.

[73] Assignee: **Focus Surgery, Inc.**, Indianapolis, Ind.

[21] Appl. No.: **09/255,287**

[22] Filed: **Feb. 22, 1999**

Related U.S. Application Data

[62] Division of application No. 08/893,130, Jul. 15, 1997, Pat. No. 5,873,902.

[51] **Int. Cl.**[7] **H01L 35/02**

[52] **U.S. Cl.** **136/233**

[58] **Field of Search** 136/233, 242; 374/208, 209

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Primary Examiner—Kathyrn Gorgos
Assistant Examiner—Thomas H. Parsons
Attorney, Agent, or Firm—Barnes & Thornburg

[57] **ABSTRACT**

A method of treatment by ultrasound comprises providing a first, ultrasound field intensity-to-voltage transducer sized for insertion into the vicinity of a treatment site and a second ultrasound treatment transducer. The free field intensities created by the second transducer in response to various second transducer exciting signal levels are determined. The first transducer outputs in the free field in response to various second transducer exciting signal levels are also determined. The first transducer is inserted into the vicinity of the treatment site, and the second transducer is positioned to create an ultrasound field at the treatment site. The distance from the second transducer to the first transducer is determined. An exciting signal is applied to the second transducer. The output of the first transducer is determined. The level of the exciting signal applied to the second transducer, the determined distance and the first transducer output are employed to determine the attenuation coefficient of the tissues between the second transducer and the first transducer.

9 Claims, 5 Drawing Sheets